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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,961	04/25/2000	Kunihiro Takatani	245402001600	8878
25227	7590	12/09/2003	EXAMINER	
MORRISON & FOERSTER LLP 1650 TYSONS BOULEVARD SUITE 300 MCLEAN, VA 22102			KANG, DONGHEE	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/557,961

Applicant(s)

TAKATANI, KUNIHIO

Examiner

Donghee Kang

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-- Th MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 8-10, 12 and 19-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5 and 19-26 is/are allowed.
- 6) ☒ Claim(s) 8-10 and 12 is/are rejected.
- 7) ☒ Claim(s) 27-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Acknowledgment***

1. Applicant's Amendment and Response to Paper NO.21 have been entered and made of Record (Paper No.23). Claims 15-17 are cancelled and new claims 19-29 are added. Thus, claims **1-3, 5, 8-10, 12 & 19-29** are pending in this application.

### ***Claim Objections***

2. Claim 27 is objected to because of the following informalities:

The phrase "Ga compound comprising Ni or Co" is misdescriptive. The "Co" should be deleted because the second electrode comprises only Ni. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims **8-10 & 12** are rejected under 35 U.S.C. 102(b) as being anticipated by Shibata et al. (JP 8-274,372).

Re claim **8**, Shibata et al. teach in Fig.1 an electrode structure on a p-type III group nitride semiconductor layer (53), comprising first (71), second (72-73) and third (74) electrode layers successively stacked on said semiconductor layer,

said first electrode layer comprising Ti,

Said second electrode layer comprising Ni, and

Said third electrode layer comprising Au.

Re claim **9**, Shibata et al. teach said first electrode layer having a thickness in a range from 1 to 500 nm (see paragraph 0012).

Re claim **10**, Shibata et al. teach said second electrode layer having a thickness of 5 nm or more (see paragraph 0012).

Re claim **12**, Shibata et al. do not teach the first electrode layer comprises a nitride of a metal included in said first metal group and also comprises a compound of Ga and Ni. However, this feature is inherent because the Shibata's metal electrode structure is also treated by thermal process and the electrode structure & material of Shibata is identical to the claimed electrode structure & material.

***Allowable Subject Matter***

5. Claims 1-3, 5, & 19- 26 are allowed.

Claims 27-29 would be allowable if rewritten or amended to overcome the objection, set forth in this Office action.

The following is an examiner's statement of reasons for allowance:

Prior art reference, taken along or in combination, do not teach or render obvious that an electrode structure on a p-type III group nitride semiconductor layer comprises a first electrode selected from one of Hf, Zr, Nb, Ta and Sc, a Co or Ni second electrode and an Au third electrode.

Prior art reference, taken along or in combination, do not teach or render obvious that an electrode structure on a p-type III group nitride semiconductor layer comprises a

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Hf first electrode, a second electrode selected from one of Ni, Pd and Co and an Au third electrode.

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Donghee Kang  
Examiner  
Art Unit 2811

dhk